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Record of Decision: Jackson Wastewater Treatment System, Town of Jackson, Wyoming

(U.S.) Environmental Protection Agency, Denver, CO Region VIII

20 Apr 79

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EPA-908/8-79-001C

RECORD OF DECISION

JACKSON WASTEWATER TREATMENT SYSTEM
TOWN OF JACKSON, WYOMING

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Summary Draft Environmental Impact Statement dated May 1, 1977 EPA 908/5-77-002
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16. Abstracts
This is a record of the decision for proposed construction of additional wastewater treatment facilities at Jackson Hole, within Teton County, Wyoming. The U.S. Environmental Protection Agency (EPA), Region VIII, Denver, under the authority of Section 201 of the Federal Water Pollution Control Act Amendments of 1972, is authorized to grant 75 percent matching funds for construction costs of designated wastewater treatment facilities. Sewage discharges as a result of area growth and development together with non-point source runoff have degraded the water quality of Flat Creek. Therefore, additional sewage treatment facilities are needed to meet water quality goals.

The approved action is to construct aerated lagoons followed by rapid infiltration basins 4 miles downstream of the existing plant. The new facility will enhance development in the undeveloped South Park area. Groundwater monitoring will be required.

17. Key Words and Document Analysis. 17a. Descriptors

Sewage Disposal
Rapid Infiltration Basins
Infiltration/percolation
Environmental Impact Statement
Sewage Irrigation
Water Pollution
Regional Planning
Financing

17b. Identifiers/Open-Ended Terms

Jackson Hole Scenic Area

Snake River Wild and Scenic River Study

17c. COSATI Field/Group

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RECORD OF DECISION

JACKSON WASTEWATER TREATMENT SYSTEM
TOWN OF JACKSON, WYOMING

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region VIII
1860 Lincoln Street
Denver, Colorado 80295

Approved by: Alan Merson
Alan Merson
Regional Administrator

Date: April 20, 1979

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DOCUMENT AVAILABILITY

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Description of the Selected Action

The selected project will require construction of an aerated lagoon/rapid infiltration treatment system on approximately 55 acres at the South Park Lower Bench Site. The land has been dedicated to the Town of Jackson for the facility, with an additional ten acres of land for future expansion offered to the Town for sale. A sewer interceptor extending four miles through South Park will be constructed.

Two lagoon cells would be aerated, with a third lagoon serving as a storage basin. Approximately seven infiltration beds for effluent disposal would be built with material excavated from the east side of Flat Creek. This project includes a septic tank dump station at the present wastewater plant site.

The selection of the lagoon/rapid infiltration treatment alternative at the South Park Lower Bench Site was based on the following consideraions:

* Lowest average annual costs including operation and maintenance (O/M) costs.

* The use of rapid infiltraton beds does not involve a direct discharge to Flat Creek except during the winter if ice conditions in the beds prevent their use.

* Visual impacts and odor problems are considered minor.

* No problems are anticipated in site acquisition and the proposed location includes adequate land for future expansion.

* The site is not located in the 100-year floodplain nor does it involve any unique environmentally sensitive areas.

* No significant impacts should occur on elk migration and the project may have significant beneficial effects on fish and waterfowl habitats.

* The system requires minimal maintenance and energy consumption is low.

The project requires installation of a four mile long (22,000 feet) interceptor pipeline running south through South Park along the Flat Creek route to the South Park Lower Bench Site. This route has the lowest average annual costs of any route considered. Discussions with local land owners indicate no right-of-way problems are anticipated.

EPA's Decision

The project selected by the Town of Jackson was developed following the decision by EPA not to fund a deep aerated stabilization pond system in the State-owned South Park Elk Feedground as proposed by the Town in 1974. EPA based this decision on probable adverse impacts identified in the draft EIS which included: serious legal difficulties in acquiring the land in the feedground, the adverse effect upon the elk herd, the proposed site was located in the 100-year floodplain, conflicts with the goals established by the Snake River Wild and Scenic River Study, and that the proposal would "open up" the rural South Park area to residential development.

Relocating the site to the selected South Park Lower Bench Site resolved all but the latter impact of induced secondary affects upon undeveloped lands. This site was challenged by two of the three Teton County Commissioners who indicated their opposition to the proposed location based on the secondary impacts of fostering new residential developments at a faster pace and possibly at higher densities than proposed in the County Comprehensive Plan. Following mediation between the two local governments, EPA signed a joint agreement on April 13, 1978, designed to minimize these secondary impacts. The key provision requires the Town and County to establish priorities and limits to the rate of taps from outside the city.

By date of this record of decision, EPA approves the facility plan for wastewater treatment for the Town of Jackson for the selected treatment alternative of a lagoon/rapid infiltration system at the South Park Lower Bench Site utilizing the Flat Creek interceptor route.

Alternatives Considered

Alternative A-1 - Construction of a new mechanical plant at the site of the existing wastewater treatment plant.

The existing treatment facility would be expanded and improved to meet the projected demand for the year 1995. The proposed improvements required the addition of a flow equalization basin and conversion of the present extended aeration system to contact stabilization, secondary clarifiers, aerobic digesters, sludge handling facilities and disinfection.

Alternative A-2 - Construction of a mechanical plant on the Boyles Hill school property.

An activated sludge plant located on State school land at the south end of Boyles Hill was another option. The land has been utilized as a gravel quarry and has undergone extensive surface disruption. This site would necessitate an interceptor line from the Town to Boyles Hill and an outfall line to the Snake River.

Alternative A-3 - A stabilization pond constructed on the Boyles Hill school property.

A deep lagoon stabilization pond could be constructed on the Boyles Hill site. An outfall line to the Snake River would be required for the disposal of treated effluent.

Alternative A-4 - A stabilization pond constructed at a central mid-South Park location.

Another option was to construct a stabilization pond system located at a site south of Boyles Hill known as a Mid-South Park location. This location would service the area of proposed development near the Town with a much shorter pipeline than would be required for the selected South Park Lower Bench Site. Treated effluent would be discharged through an outfall line to the Snake River.

Alternative A-5 - A stabilization pond constructed at a South Park location adjacent to Lower South Park Road.

Alternative A-5 was similar to A-4 in that it would entail the construction of a deep aerated stabilization pond system in the South Park area. The facility would require an outfall line running south to the main channel of the Snake River. The siting of a plant at this location would immediately open up a substantially larger amount of land to be serviced by gravity flow than the Mid-South Park Alternative.

Alternative A-6 - Interim upgrading of the existing plant to provide adequate wastewater treatment for the existing population.

In order to improve the system to a higher degree of operation, interim (short term) upgrading of the existing system was considered. This would require finishing the plant as it was originally designed plus the addition of chlorination facilities and a general maintenance overhaul. Reserve capacity would only be sufficient for a two or three year period until additional expected growth would require additional treatment capacity.

Alternative A-7 - No further action on the Town's part to improve wastewater treatment.

Under this option, the Town would do nothing to further improve the condition of their wastewater system, reduce odor problems and the water quality degradaiton that is presently occurring. Notice of NPDES permit violations would then be issued by the Wyoming Department of Environmental Quality.

Alternative 1 - Aerated lagoon/rapid infiltration system located at the South Park Upper Bench Site.

Another option included an aerated lagoon/rapid infiltration system located at the South Park Upper Bench site near U.S. Highway 189. As with the Lower Bench Site, the upper site is not located in the 100-year floodplain. Although the site is owned by the same individual as the selected location, there is reluctance to sell the site due to higher development values and the potential for adverse visual impacts from the highway.

Alternative 2 - An oxidation ditch at the South Park Upper Bench Site.

Alternative 2 utilizes an oxidation ditch process at the Upper Bench site. This type of plant is an activated sludge process that uses a continuously recirculating loop channel, in this case two loop oxidation basins. Approximately four (4) acres of land at the Upper Bench location are required for the system, with an additional 15 acres needed for sludge burial.

Alternative 4 - An oxidation ditch at the South Park Lower Bench Site (Note: Alternative 3 is the selected option).

The final treatment alternative considered was the same oxidation ditch process at the Lower Bench site. However, the proposed method for sludge disposal involved truck transport due to soils and groundwater conditions at the site which prohibited burial or land application.

Cost Effective Analysis of Alternatives

TABLE 1

ALTERNATIVE TREATMENT COST ESTIMATES
TOWN OF JACKSON WASTEWATER FACILITIES PLAN

No.	Alternative Description	Capital Cost ($)	Annual O/M Cost ($/yr)	Average Annual Present Worth
A-1	Existing site	2,973,000	155,000	671,000
A-2	Mechanical Plant Boyles Hill	4,896,000	179,700	874,600
A-3	Stabilization Pond Boyles Hill	3,278,000	69,700	431,200
A-4	Stabilization Pond Mid-South Park	3,496,000	68,300	441,500
A-5	Stabilization Pond - South Park Road	4,487,000	72,300	535,300
A-6	Interim up-grading of the Existing Site (only to 1980)	373,000	83,700	(rejected on the basis of requiring additional expansion in two years)
A-7	No action	no grant costs		(rejected as not meeting legally required water quality standards)

No.	Alternative Description	Capital Cost ($)	Annual O/M Cost ($/yr)	Average Annual Present Worth
1	Aerated Lagoon/Rapid Infiltration at Upper Bench Site w/Flat Creek Interceptor	4,483,300	70,500	479,200
2	Oxidation Ditch at Upper Bench Site w/Flat Creek Interceptor	5,100,300	131,800	597,800
3	Aerated Lagoon/Rapid Infiltration at Lower Bench Site w/Flat Creek Interceptor (Selected)	4,407,900	70,000	473,300
4.	Oxidation Ditch at Lower Bench Site w/Flat Creek Interceptor	4,867,700	131,300	576,000

(Cost analysis for Alternatives A-1 through A-7 completed by James M. Montgomery Engineers of Boise, Idaho, February 1977 price base; Cost analysis for Alternatives 1 through 4 completed by C. E. McGuire Engineers of Grand Junction, Colorado August 1978 price base.)

The cost comparison was done in two phases. In the first phase, alternatives A-1 through A-7 were considered. Alternatives A-6 and A-7 were rejected on the basis given on the chart. Alternatives A-2, A-3, and A-4 were also rejected because they required an outfall line to a meandering section of the Snake River which was incompatible with goals of the Snake River Wild and Scenic River Study and these outfall line routes crossed several significant wetlands. While the Town preferred a site near South Park Road (A-5), the Teton County Commissioners were opposed to this site. The Town of Jackson reasoned and EPA concurred that moving from the existing site was necessitated by the likelihood of the town expanding around and beyond this site and that while Flat Creek flows are sufficient to handle secondary effluent now, costly tertiary treatment would be required in the future. According to EPA's cost effectiveness criteria, the South Park Road site is cost effective even though capital costs are significantly higher than expansion at the Existing Site. In comparing the average annual present worth costs of these two facilities (See Table I), the South Park Road Site costs are considerably less due to much lower annual operation and maintenance costs.

At the end of this first phase which culminated in the April 13, 1978 Tri-Party Agreement, the South Park Road Site with lagoons (A-5) was selected as the cost-effective environmentally acceptable solution. The second phase of the cost-effective analysis (the final EIS and facility plan update) resulted in cost analysis of alternative sites near the South Park Road Site. This included the Upper and Lower Bench Sites and two treatment options at each site, both designed to meet summer ammonia limits determined to be necessary. The treatment options included aerated lagoons followed by rapid infiltration in order to eliminate the need for any outfall line and oxidation ditches. (Alternatives 1, 2, 3 and 4). The cost effective analysis indicated an aerated lagoon/rapid infiltraton system was cost-effective. Due to visibility from the highway, lack of expansion area, land owner reluctance to sell, and their nearly identical costs, the Upper Bench Site was rejected in favor of selecting the Lower Bench Site.

Environmentally Preferred Alternative

Based on the secondary impacts to agricultural land, expansion at the existing site (Alternative A-1) is the environmentally preferred solution. This site would not result in the induced development assisted by a federal grant of the agricultural ranching land in South Park. However, the proposed low density development in this area as allowed under the Teton County Comprehensive Plan would not have entirely preserved this area for ranching either. Further, there could have been a proliferation of smaller package plants in this area if the County continued to approve large developments as it did in 1975 with the approval of the 495 unit Raptor J Ranch. Thus, EPA entered into mediation between the County and Town regarding the problems of reducing the induced secondary impact to this agricultural land and the problem of the costs of urban sprawl. (Note: Protection of floodplains, wetlands, steep slopes and other environmentally sensitive areas was provided for in the Teton County Comprehensive Plan.) The result of this mediation was the April 13, 1978, Tri-Party Agreement which specified certain means of reducing this secondary effect. The key provision is the future establishment by Teton County and the Town of Jackson of an out-of-city tap-in limit which will specify the number of taps provided annually to areas beyond that area immediately adjacent to the Town.

On the basis of water quality only, the selected project of aerated lagoons followed by rapid infiltration at the South Park Lower Bench Site is the environmentally preferred solution. Other solutions required either an outfall line to the Snake River contrary to the goals of the Snake River Wild and Scenic River Study or continued discharge to Flat Creek which would eventually require costly tertiary treatment.

Considering both factors of water quality and induced land use changes, EPA has determined that the selected site, when combined with the binding agreement which mitigates effects on this agricultural land, constitutes an environmentally acceptable solution.

Issues Considered in Making the Decision

1) Flat Creek Water Quality

Problem - Flat Creek water quality is adversely impacted by discharge from the present Jackson Treatment plant. Water quality data indicate that fecal coliform standards are frequently exceeded downstream from the plant, with ammonia and total phosphate concentrations also showing substantial increases. The existing treatment facilities are not capable of meeting the NPDES permit requirements established by the Wyoming Department of Environmental Quality.

Conclusion - The Jackson, Wyoming 201 Wastewater Facilities Plan Update (October, 1978) and the original 1974 facilities plan identified nine alternative wastewater treatment systems for the Town of Jackson for capacity to 1995, an interim upgrading option, and the "no action" alternative. Selection and implementation of any of the nine treatment alternatives is required in order to provide the Town of Jackson with treatment facilities to adequately serve the community through 1995. Therefore the no action or interim upgrading alternatives were rejected. Further, maximum protection of Flat Creek water quality is provided by the no-discharge rapid infiltration alternatives. The level of treatment achieved by the selected system, combined with the ground water dilution, would not be expected to result in any violations of drinking water or surface water quality standards.

2) Land Use Changes in South Park

Problem - The proposed location for the selected treatment facility will provide the potential for increased urban-type development in South Park due to the availability of central sewer facilities. This growth potential is in conflict with the goals and policies of the Teton County Comprehensive Plan and Implementation Program which generally encourages the preservation of the "ranching lifestyle and economy," designates South Park for low density development, and specifies that sewage treatment plants and other facilities should not be located where they will foster scattered development. On the other hand, even low density development as allowed under the Comprehensive Plan would not adequately preserve the ranching life style and economy. In 1975, the County approved the Raptor J Ranch development in South Park for 495 residential units. This development included a proposed satellite package plant for sewage treatment. Such "owner-operated" plants have poor operation and maintenance histories in Wyoming. A proliferation of package plants and individual disposal systems would be expected without central collection.

Conclusion - In order to minimize the problem of secondary impacts, the Town of Jackson, Teton County and EPA have entered into a tri-party agreement which attempts to restrict the number of out-of-city taps to the treatment plant. According to the legally binding agreement, the annual number of out-of-city taps allowed by the County and the Town must be determined prior to completion of the facilities.

The Jackson Town Council supports the selected South Park Lower Bench location. Similarly, a majority of the Teton County Commission (1979 elected term) have indicated support. This support, coupled with a carefully defined out-of-city tap-in rate, will result in minimizing secondary impacts. However, the decision will also result in the need to amend the County's Comprehensive Plan and Implementation Program to the theme of urbanization of South Park. Most of this area, which includes approximately 6,500 acres of undeveloped land, is currently planned for a maximum density of one unit per six acres, or not more than one unit per three acres if groundwater levels drop below three feet upon removal of irrigaton. These density limitations are based primarily on individual wastewater treatment constraints which would be effectively removed by central sewer availability.

3) Odors and Visual Intrusion

Problem - The present wastewater treatment plant has objectionable odors and is unsightly. Consideration of aesthetics in the design, construction, and operation of wastewater treatment works is necessary to minimize these effects.

Conclusion - The Lower Bench Site would be less visually impacted than any other site due to the distance and elevation from U.S. Highway 189. Similarly, potential odor problems would also be less at the Lower Bench Site due to the remoteness of the location. Approximately $60,000 has been included in the proposed budget for the selected wastewater management system to landscape the facility and provide for wildlife habitat enhancement.

Particular attention in the Step 2 design phase of the project will be directed to building design which will include solar space heating and landscaping for the facilities. Recreational features include use of 10,000 feet of the interceptor route within the Raptor J Ranch development as a paved bicycle/pedestrian path. Public input during the Step 2 design phase is welcomed.

4) Snake River Wild and Scenic River Study

Problem - The section of the Snake River flowing from Teton National Park to Palisades Reservoir is a candidate for classification as a "Wild and Scenic River" under the provisions of the Wild and Scenic River Act (P.L. 90-542). The designation potential identified for this reach of the river within South Park is "recreational." An important criteria in the evaluation of wastewater treatment options for the Town of Jackson was the selection of an alternative which would not damage the potential for this designation.

Conclusion - The rapid infiltration treatment alternative provides the best degree of protection to Flat Creek and the Snake River water quality. No direct discharge to the Snake River is necessary, therefore there will not be any interference with the stream or banks or the stream bed. The proposed level of treatment provided by the rapid infiltration system and the projected dilution factor will be more than sufficient to adequately protect surface water quality for the proposed "recreational" classification currently being considered under the Wild and Scenic River Act.

Mitigation for the Selected Action

At such time as the Step II grant offer is tendered, the following conditions will be appended:

1. That the provisions agreed to in the April 13, 1978, Tri-Party agreement are binding conditions on the Town of Jackson, Teton County, and EPA. Said agreement in its entirety shall be conditions to the acceptance of this grant. One major provision of the April 13, 1978, agreement is the completion of Teton County's and the Town of Jackson's out-of-city tap-in provisions. This policy statement is due to EPA prior to sewage treatment facility operation.

   According to the present schedule, these facilities should be operational by July 1, 1980. The County and Town are reminded that their out-of-city tap-in policy is due to EPA by that date or earlier.

2. EPA has determined additional ground water data is necessary in order that the design for rapid infiltration basins may be completed. The Town of Jackson shall direct its consultant to obtain depth to ground water measurements during the seasonal high (May and June of 1979), to drill a new well and run an aquifer pump test, and to determine the rate of ground water flow by dye tests. The minimum separation between the seasonal high ground water and the bottom of the infiltraton basin shall be three feet. If the additional ground water data indicates conditions are adverse so as not to provide the expected dissipation of effluent and thus the lower bench site were determined to be unsuitable for rapid infiltration, the upper bench site will be acquired by the Town. This information shall be submitted prior to completion of plans and specifications.

3. A separate landscaping and revegetation plan will be prepared for the proposed project during Step II. The goal of landscaping is to provide a natural setting to reduce the visual impacts from the Snake River, the highway and nearby private property. The goal of the revegetation portion of the project shall be to provide self-reproductive native vegetation of at least 50% pre-project plant density within five years. Should initial seeding and/or transplanting fail, the Town agrees to be responsible for reseeding and additional transplanting so as to meet the 50% density goal. Maintenance of this new plant community will be a continuing responsibility of the Town and said maintenance shall be incorporated into the plant operations and maintenance manual. Coordination with the Soil Conservation Service, the Bureau of Land Management and the Wyoming Department of Environmental Quality Division of Land Quality is required.

4. A separate wildlife enhancement and wildlife management plan will be prepared for the proposed project. The goal of the wildlife habitat enhancement element is to provide new spawning grounds for cold water sports fish and new habitat for waterfowl. Therefore, the dredging for the fill material shall be planned and constructed so as to provide maintenance-free conditions for suitable habitat for cold water fish and migrating waterfowl. The goal of the wildlife management element shall be to minimize impact to migrating elk and elk wintering in the feed-ground, minimize the impact to all sport and non-sport animals in the area, and to reduce any wildlife damage to the plant that might occur. All aspects of the wildlife management plan shall conform to State game laws. If control of certain mammals proves necessary, preference will be given to non-lethal control methods even if lethal methods comply with State laws. Control methods may be necessary for damage that could result from elk, beaver or muskrat. The wildlife management element of this plan shall be incorporated into the plant operations and maintenance manual. Coordination with the Wyoming Game and Fish Department and the U.S. Fish and Wildlife Service is required.

Monitoring Requirements and Enforcement Program

A. Key Provisions in the April 13, 1978 Tri-Party Agreement

1. The Town of Jackson shall:

* Submit to the County for review and approval all structures to be built at the South Park treatment site.

* Begin as soon as possible to develop a new sewer system pricing policy that incorporates a "full cost" pricing concept for all customers for both capital and maintenance and operations costs, and for returning the county's capital contribution for septic tank waste disposal facilities.

* Consider only requests for sewer service from out-of-city potential customers that have county development permits and County approval for sewer services.

* Limit new taps to out-of-city customers so that they will only be granted to potential customers that have County approval and that are subject to a new City policy of detailed criteria that determines priorities for such connections.

  The new City policy for distributing out-of-city taps will include at least the following classes of customers:

  (1) existing systems with health and safety problems;
  (2) existing systems with water pollution problems;
  (3) City Expansion Area - as delineated in the Teton County Comprehensive Plan adopted December 6, 1977, or as amended;
  (4) old and new developments adjacent to City limits;
  (5) other existing developments; and
  (6) other new developments.

* Limit the number of "out-of-city" equivalent taps, permitted on an annual basis so they shall not exceed the annual allowable number of "out-of-city" taps as set forth in the comprehensive plan or as amended.

For the purpose of allocating these equivalent taps, "out-of-city" taps are defined as taps allocated to potential customers located outside the corporate limits of the Town of Jackson as of the date of this agreement. Such definition shall exclude any taps located in the Expansion Area (as delineated in the Teton County Comprehensive Plan adopted December 6, 1977, or as amended) or in any area which meets the following requirements: (1) the area has been annexed subsequent to this agreement or is subject to the provisions of a written annexation agreement; and (2) the area is adjacent to the present city limits (i.e., situated so that the City as newly constituted is geographically compact).

Allowances may be made for reallocating any unused "out-of-city" taps in any one year as additional permitted "out-of-city" taps in future years. Existing residences outside the present City limits, on private sewerage systems as of the date of this agreement, may be connected to the City's system (after receiving approval first from the County then the City) without reducing permitted "out-of-city" tap limits for the year in which they connect.

* Take all reasonable steps to assist the County in administering the County's Comprehensive Plan.

* Take all steps legally available to assure all elements of this agreement are enforced until at least 1995 (approximately 15 years from completion of new plant).

2. Teton County shall:

* Provide pro-rata share of facility capital cost for appropriate receiving and processing facilities for disposal of septic tank wastes.

* Advise City of desired design criteria for all structures at the South Park site.

* Advise the City of all existing and future developments that the County wishes to be connected to the City's sewer system. Develop a policy and detailed criteria for making such decisions.

* Take the lead in further addressing rate of growth issues in the County and develop an annual number of out-of-city taps per year as a part of the comprehensive plan taking into consideration fiscal and other forms of impact upon the County, scenic preservaton activities, schools and other urban service systems. The development of the annual number of out-of-city taps shall be done prior to completion of the sewage treatment facilities.

* Take all reasonable steps to carry out the new County Comprehensive Plan.

* Require all County subdivision within the City expansion area or adjacent to the City limits that are to be served by the City of Jackson's sewer system to conform to development standards that meet or exceed the City's standards.

* Take all steps legally available to assure all elements of this agreement are enforced until at least 1995 (approximately 15 years from the completion of new plant).

3. Besides approval of the facility plan for the lagoon/rapid infiltration system at the South Park Lower Bench Site, EPA shall:

* Review the City's new sewer system pricing policy for consistency with EPA regulations and guidelines on user fee requirements and industrial cost recovery requirements.

* Require an annual report (and access to documentation of said report) of the City stating the number and location of in-city and out-of-city taps granted in that year.

* Recognize goals of the County Comprehensive Plan in making EPA decisions in the area.

* Make funding assistance in accordance with EPA rules and regulations to build the new plant and interceptor, said grant to be conditioned upon full and continued performance of this agreement for the design life of the facility which shall be until 1995. Further, will agree to seek other sanctions as might be necessary to assure full and continued performance with this agreement by all parties. Such sanctions may include, but not be limited to, the following:

    Court directed mandatory compliance with provisions of agreement by all parties

    Court directed repayment of federal sewer grant funds

    Limitation of future EPA funds to the area.

B. Grant Conditions

The conditions defined on pages 13 and 14 shall be required grant conditions of the Town and County. Draft plans for conditions 1, 3, and 4 as defined on these pages will be due upon 50% completion of Step 3. Final plans for conditions 1, 3, and 4 shall be completed upon 80% expenditure of Step 3 construction grant funds.

C. Permit Limitations and Ground Water Monitoring

Average Effluent Concentration Limitations

Parameter	30 Consecutive Day Period	7 Consecutive Day Period	Instantaneous
BOD_5 - mg/l	30	45	
Total Suspended Solids - mg/l	50	75	
Fecal Coliform - number/100 ml	1500	3000	
May 1 to September 30			
Total Residual Chlorine - mg/l			0.05

	May 1 to Oct. 14	Oct 15 to April 30
Ammonia Nitrogen - mg/l (as N)	10	25
Ammonia Nitrogen - lb/day (as N)	292	365
pH - units	Shall remain between 6.0 and 9.0	

There shall be no discharge of wastewater effluent to the receiving stream (Flat Creek) during the period from May 1 to October 14 of each calendar year. There shall be no direct discharge to the receiving stream during the period from October 15 to April 30 of each calendar year unless one or more of the following conditions exists and can be documented:

1. Climatic conditions have reduced the infiltration and/or percolation rates to a degree which will prevent all of the effluent from being disposed of on the infiltration/percolation basins;

2. Valves or piping to or in the infiltration/percolation basins that become inoperable due to freezing or frozen effluent conditions;

3. Severe wintertime climatic conditions such that the physical integrity of the infiltration/percolation basins or appurtenances would be threatened by their continued use under these conditions. This can include but is not limited to rupture of valves or piping as a result of effluent freezing.

Ground water monitoring wells shall be constructed so as to provide a self monitoring data base of ground water conditions. Such monitoring is to include the following:

Total BOD_5, mg/l	Weekly	Grab
Total Suspended Solids, mg/l	Weekly	Grab
Fecal Coliforms, number/100 ml	Weekly	Grab
Depth to Ground-water, feet	Weekly	Instantaneous
Ammonia Nitrogen, mg/l (as N)	Weekly	Grab
Total Nitrogen, mg/l (as N)	Weekly	Grab